William Chargin

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Please visit my website at git.io/wc for an interactive résumé, and more up-to-date and detailed project descriptions.

Education and selected skills

B.S. Computer Science (with honors) with **minor in Mathematics** from Carnegie Mellon University. GPA 4.00. (All requirements fulfilled; degree to be conferred.)

Proficient or better in: Python, Java, C, Haskell; JavaScript, React; Google App Engine; Git; LaTeX, TikZ, Blender 3D.

Experience

Google Brain   **Mountain View, CA**
Software Engineering Intern   *May–August 2017*
- Worked on the TensorFlow team developing TensorBoard, an open-source framework that helps developers and researchers to understand, debug, and improve their machine learning models.
- Designed and implemented a rich plugin system to enable all users to write data visualizations tailor-made for their purposes. This system is already used by external contributors. Work spans web frontend, Python backend, and core TensorFlow API design.

Khan Academy   **Mountain View, CA**
Software Developer Intern (infrastructure)   *May–August 2016*
- Extended the site's core content system to enable creating and curating content separately for different languages and locales, as opposed to simply translating existing content.
- Conducted extensive testing of correctness, performance, memory, and cost to ensure a smooth transition upon launch.
- Improved tooling to help translators, content creators, and international teams work effectively with the new content system.

Khan Academy   **Mountain View, CA**
Software Developer Intern (frontend and backend)   *June–September 2015*
- Frontend, backend: added CMS support for thumbnail upload, compositing, storage, and usage; implemented streaks (à la Duolingo).
- Backend: implemented hot loading of JSX and CSS/Less for development; sped up internal content publish process by 57%.

Cal Poly Computer Science Department   **San Luis Obispo, CA**
Instructional Student Assistant, Fundamentals of Computer Science II   *Fall 2014–Spring 2015*
- Designed, implemented, tested, and documented a flexible and extensible automated grading system. (See *Projects* below.)

Selected projects

Assorted interesting course projects   Java
- An expanded version of *Scrabble* (core logic and a polished GUI); an extensible data visualization system with plugin support.
- More details (technical descriptions, documentation, screenshots, videos) at wchargin.github.io/projects/cmu-15-214.

Microcomputer assembler and simulator   JavaScript
- Web-based interactive simulator for the LC-3, a teaching microcomputer, to supersede the standard Windows application.
- Simulator includes accurate instruction cycle, debugging tools, polling-based and interrupt-driven I/O, and file upload/download.
- Released as free software at wchargin.github.io/lc3web. Used by more than 2,000 students of Cal Poly's CPE 225 course.

Automated grading system   Bash, Java
- Automatically tests and grades student work for style and correctness, according to customizable and extensible grading modules.
- Grades and archives all student work at assignment due dates, and immediately emails students with helpful feedback.
- Includes tool to efficiently manually investigate failing submissions, to ensure that all grades are accurate.

Model United Nations debate moderation system   Java
- Created and deployed an application system that unifies the tools that chairs need to aptly moderate debates.
- Implemented networking across multiple computers to maximize efficiency; separate modes for head chair, director, and rapporteur.
- Deployed system at multiple conferences; system used by dozens of chairs and hundreds of delegates.
- Released as free software; available at wchargin.github.io/kiosk/.